A KEY TO THE GENUS *PHAEDON* (COLEOPTERA: CHRYSOMELIDAE: CHRYSOMELINAE) FROM CHINA AND THE DESCRIPTION OF A NEW SPECIES[1]

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Abstract: A key to all 16 Chinese species of *Phaedon* Latreille is provided with a description of *P. fulgida* sp. nov., from Guizhou, China. The new species is similar to *Phaedon cuprea* Wang, 1992 differing primarily in the presence of punctures on the pronotum and in aedeagus morphology. Type specimens are deposited in the Institute of Zoology, Chinese Academy Sciences, Beijing, China.

KEY WORDS: *Phaedon*, Coleoptera, Chrysomelidae, China, new species.

Phaedon was erected in 1829 by Latreille. Chapuis (1874) treated the three genera, *Alitene, Orthosticha, Emmertrus,* as synonyms of *Phaedon*. The genus *Phaedon* currently includes about 75 species worldwide, 33 of which occur in Asia, 3 species in Europe, 13 species in North America, 23 species in South America, 1 species in Africa and 2 species in Australia. The bulk of the species occur between 60°N and 50°S in temperate and sub-tropical regions. Species inhabit the farmlands of plains up to alpine meadows. For example, *P. alpina* Ge et Wang, occurs at 4,700m which is the highest altitude recorded for this genus.

Some species of *Phaedon* are of economic importance. For example, the lowland species, *P. brassicae* Baly mainly feeds on cabbage, radish, shepherd's-purse, carrot, shallot, lettuce and other similar crops. *P. armoraciae* Linnaeus mainly feed on *Armoracia*. The two species are important pests in China. *P. fulvicornis* Chen mainly feeds on *Rubus*. Furthermore, *P. alticola* Chen, a montane species, feeds on *Ranunculus tricuspis* and *Lanccea*.

The genus *Phaedon* was first studied in China during 1934 by the late Prof. Chen Sicien who redescribed two species, *P. armoraciae* Linnaeus and *P. brassicae* Baly in that year. Subsequently 12 new species were described by Chen (1936, 1974, 1984), Wang (1984, 1992a, 1992b, 1997) and Gressitt and Kimoto (1963). Most recently, Ge *et al.* (2002) described three new species. In this paper, we give a key for all the Chinese species and describe a new species from Guizhou, China.

Systematics

Genus *Phaedon* Latreille

Phaedon Latreille, 1829, *In* Cuvier, Regne Anim. ed. 2, 5: 151.

Alitene Gistl, 1857, Vacuna, 2: 530.

Orthosticha Motschulsky, 1860, Schrenck's Reisen Amurl., 2: 196. (Type species: *Plagiodera bonariense* Sahlberg.)

Emmetrus Motschulsky, 1860. Schrenck's Reisen Amurl., 2: 221. (Type species: *Chrysomela betulae* Fabricius.)

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Diagnosis. Elongate, strongly convex. *Head:* small, deeply inserted into prothorax. Compound eyes elongate or sub-spherical. Anterior part of clypeus concave or convex. Apical segment of maxillary palpi slender, twice as long as penultimate segment. Antennae extending to base of elytra, segments 7-11 broadened apically. *Pronotum:* with coarse punctures; anterior margin broadly emarginate with projecting anterior angles. Base with or without a raised margin. *Scutellum:* triangular with rounded apex, impunctate. *Elytra:* broader than pronotum at base, slightly broadened after middle; with ten striae, not including incomplete basal scutellar row. Epipleuron plain, broadened basally, slightly narrowed posteriorly, inner edge without pubescence. *Underside:* Prosternal process slender, truncate apically, slightly broadened; procoxal cavities open; mesosternal process broadened, emarginate apically. *Legs:* outer-lateral margin of tibiae curved; third segment of tarsi entire or bilobed; claws simple.

Distribution. Worldwide, temperate and subtropical regions.

Key to the Chinese species of the Genus *Phaedon* Latreille

1. Basal margin of pronotum unmargined; epipleuron narrow; third segment of tarsi entire ...... *P. fulvicornis* Chen, 1974
- Basal margin of pronotum margined; epipleuron broadened basally, slightly narrowed posteriorly; third segment of tarsi bilobed 2
2. Dorsum with markings 3
- Dorsum without markings 5
3. Mid-posterior area of elytra with dark markings ...... *P. gressitti* Daccordi, 1979
- Elytra without markings 4
4. Pronotum reddish-brown laterally and darker medially, dark area trapezoid, narrow apically, broadening posteriorly, covering 1/4 to 1/3 area of pronotum; elytral interstices impunctate ...... *P. maculicollis* Chen, 1974
- Pronotum light reddish-brown laterally and dark medially, dark area trapezoid, narrow apically, broadening posteriorly, covering 1/3 to 1/2 area of pronotum; elytral interstices with fine punctures ...... *P. potentillae* Wang, 1992
5. Head and pronotum dark brown, elytra dark blue, purplish-blue or purplish-brown ...... *P. alticola* Chen, 1974
- Head, pronotum and elytra unicolorous 6
6. Hindwing absent 7
- Hindwing present 12
7. Claw bearing segment of tarsus produced apically into a ventrally directed tooth-like spur (Fig. 4) 8
- Claw bearing segment of tarsus not produced apically into a ventrally directed tooth-like spur. 9
8. Scutellum sub-triangular and with fine punctures; elytral interstices with fine punctures ...... *P. cuprea* Wang, 1992
- Scutellum ligulate and impuntate; elytral impunctate ...... *P. fulgida* Ge *et* Yang, *sp. nov.*
9. Epipleuron impunctate; interstriae of elytral interstices flat, impunctate, shagreened ...... *P. alpina* Ge *et* Wang, 2002
- Epipleuron punctate 10
10. Third segment of antenna longer than second; epipleuron with coarse and sparse punctures ...... *P. wuningshanensis* Ge *et* Wang, 2002

- Third antennal segment not longer than second 11

11. Body blue, two basal segments of antennae reddish-brown .... *P. balangshanensis* Ge *et* Wang, 2002

- Body purple, antennae dark .... *P. aptera* Chen *et* Wang, 1984

12. Elytral interstices impunctate 13

- Elytra punctate 14

13. Elytral interstices smooth .... *P. chinensis* Gressitt *et* Kimoto, 1963

- Elytral interstices shagreened .... *P. mellyi* Achard, 1922

14. Epipleuron impunctate; Body metallic reddish-brown .... *P. fulvenscens* Weise, 1922

- Epipleuron punctate 15

15. Elytral interstice 9 and 10 of equal width .... *P. armoraciae* Linnaeus, 1758

- Elytral interstice 10 wider than 9 .... *P. brassicae* Baly, 1874

Phaedon fulgida Ge *et* Wang, NEW SPECIES

(Figs. 1-6)

Diagnosis. The new species is similar to *P. cuprea* Wang, 1992 differing from these primarily in punctation of the pronotum and aedeagus morphology. *P. cuprea* differs from the new species by having the following characteristics: clypeus with sparse punctures; vertex with dense and fine punctures; pronotum with coarse and dense punctures; scutellum sub-triangular and with fine punctures; diameter of punctures of elytral striae is the same as those of pronotum, interstriae with fine punctures.

Description. Length: 3.92-4.60mm (measured from the apex of the clypeus to the apex of the elytra), width: 2.72-3.12mm (measured at base of the elytra).

Form. Body sub-spherical, convex dorsally (Fig. 1).

Color. Metallic bronze; clypeus, last segment of maxillary palpus, two apical segments of labial palpi and claws mahogany brown.

Head. Frons slightly depressed, flattened along antennal sockets; clypeus with coarse punctures and pubescence; upper clypeus (lower frons) between antennal sockets with sub-triangular carina; frons with coarse punctures, and vertex with finely shagreened surface and very fine, sparse, confused punctures; eyes elliptical; average dorso-ventral eye length = 0.09mm; average interocular distance (at dorso-mesal margins) = 0.65mm.

Antennae. Slender, extending well beyond base of elytra, segments 7-11 with dense pubescence; segment (1-11) length (average of type series) in millimeters 0.23, 0.17, 0.21, 0.16, 0.14, 0.16, 0.16, 0.17, 0.19, 0.18, 0.22 (Fig. 2).

Pronotum (Fig. 3). Average length at middle = 1.03mm, average width at middle = 1.77mm; much narrower at base than elytra; rectangular; lateral margins evenly, gradually rounded, slightly narrower at antero-lateral angles, anterior margin widely emarginate with projecting antero-angles; postero-angles obtuse; anterior, lateral and posterior margins with raised bead; lateral margin with a shallow depression on central area; disc with sparse punctures, diameter of these same as those of clypeus; with finer punctures interspersed; lateral and antero-angles with coarse punctures; posterior margin with coarse and dense punctures; surface with shagrination.

Scutellum. Ligulate, smooth and impunctate, surface slight shagreened.

Elytra. Length = 2.56mm, width (at middle) = 3.38mm; convex; abbreviated scutellary stria plus 10 complete striae composed of deep, large punctures, larger than those of the clypeus; interstices surface smooth, impunctate, finely shagreened; humeral callus not prominent; apically interstices tapered and narrow; interstices equally spaced except 8th which is wider; epipleuron flat, broadened basally, slightly narrowed posteriorly.

Underside. Lateral margin of prosternal process with punctures and pubescence, apically truncate, slightly broadened, central area with a longitudinal ridge; procoxal cavities elongate, open; mesosternal process narrow, posterior margin emarginate, with sparse punctures and pubescense; meta-

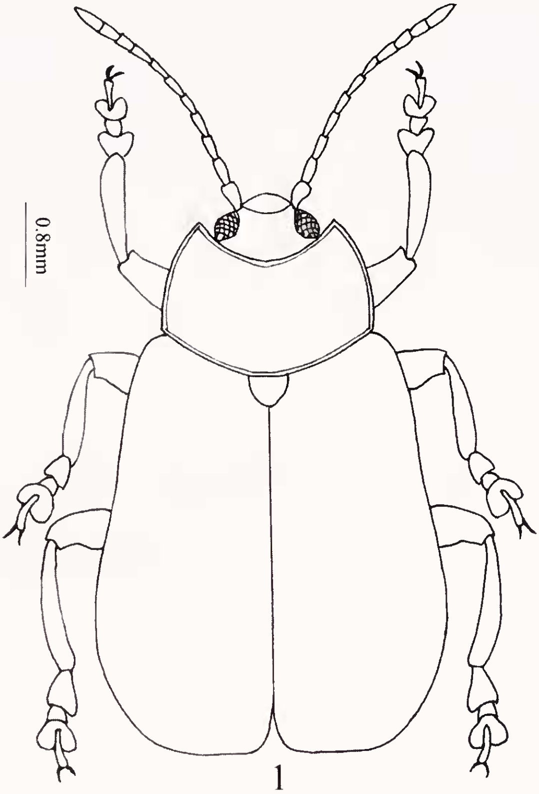


Fig. 1. Habitus of *Phaedon fulgida*, NEW SPECIES.

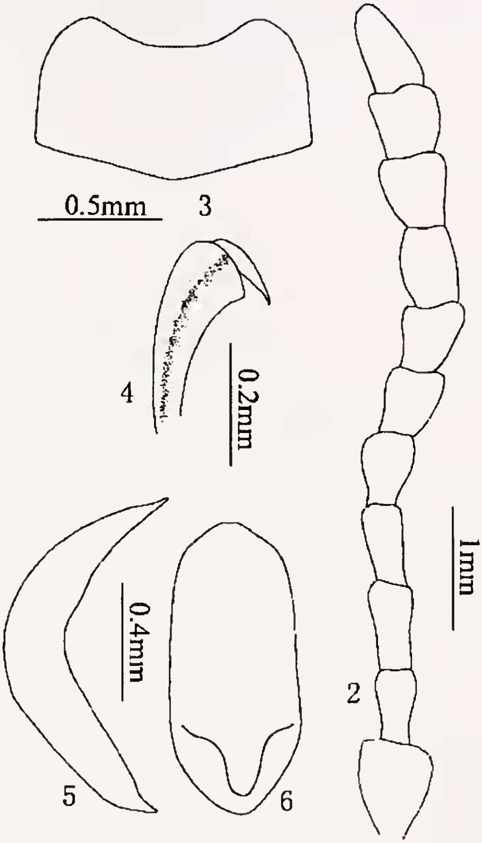
sternum with large coarse punctures, larger than those of the elytra, anterior margin emarginate; abdominal sternites with small shallow punctures and sparse pubescense.

Legs. With large punctures, diameter of these same as those of metasternum; with prominent pubescence, especially on lateral margin of tibiae and ventral surface of tarsi; femur rectangular, outer-lateral margin with shallow depression; tibiae slender, with dense pubescence especially at apex, outer-lateral margin curved, third segment of tarsi bilobed, claw bearing segment of tarsus produced apically into a ventrally directed tooth-like spur (Fig. 4); claws simple.

Aedeagus. In dorsal view broadened basally, tapered to apex, slightly pointed apically; in lateral view bent at right angles (Figs. 5-6).

Material studied. Holotype: male, China, Guizhou Province, Huixiangping County, Fanjing Shan (27.9°N, 108.6°E) 1780m, 1 August 2001, Coll. Hongbin Liang. Paratypes: 2 females, same data as holotype, except collected by Kangzhen Dong. All type specimens are deposited in the Institute of Zoology, Chinese Academy of Sciences, Beijing, China.

Etymology. From the Latin, *fulgida*, meaning shining.



Figs. 2-6 *Phaedon fulgida,* NEW SPECIES. Fig. 2. Antenna. Fig. 3. Pronotum. Fig. 4. Claw. Fig. 5. Aedeagus (lateral view). Fig. 6. Aedeagus (dorsal view).

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